

**REMARKS**

By this Amendment, Applicants have amended claims 14 and 20. No new matter has been added. Claims 14-20 remain pending in this application. In the Final Office Action, the Examiner rejected claim 14 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,619,804 (*Davis*) and claims 14 and 16-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,233,024 (*Hiller*), in view of *Davis*, and further in view of U.S. Patent No. 6,719,430 (*Cotton*). Applicants respectfully traverse all pending claim rejections and request reconsideration of the application.

**Support for Amendment to Independent Claim 14**

Applicant has amended independent claim 14 herein to recite, *inter alia*,

a first optical system that forms an intermediate image of the primary image surface; and  
a second optical system having a concave reflector that forms a secondary image corresponding to the secondary image surface according to the intermediate image.

This amendment to independent claim 14 has support in the originally filed specification, such as at page 15, lines 7-14.

To summarize the image formation, the first optical system forms an intermediate image of the primary image surface. The concave reflector then converges the image to form a pupil that is formed as the secondary image surface. The first optical system generates an intermediate image at a low magnification. The second optical system enlarges the intermediate image and forms it as the secondary image surface at a specified magnification.

Without limitation, further support for the amendment to independent claim 14 can be found in the originally filed specification at, for example, page 25, lines 7-11.

The projection optical system is composed of the first optical system L11 and the second optical system L12 and guides the light (primary image surface) image-modulated by the image display element P1 to the screen S1 to form an image (secondary image surface) on the screen S1

Because the amendment to the claim 14 has support in the originally filed specification, Applicants submit that no new matter has been added. Further still, upon entry of this Amendment, Applicants respectfully submit that the pending claims are allowable over the references relied on by the Office and the cited objections for at least the following reasons.

**Claim Rejection under 35 U.S.C. § 102(b) based on Davis**

In the Final Office Action, claim 14 was rejected under 35 U.S.C. § 102(b) as being anticipated by *Davis*. *Final Office Action* at 3. The only claim listed in the rejection is independent claim 14. Applicants respectfully submits that *Davis* fails to disclose or render obvious all of the subject matter of amended independent claim 14.

To establish anticipation under 35 U.S.C. § 102, the Office must establish that a reference teaches, either expressly or inherently, each and every element of a claim. See M.P.E.P. § 2131 (citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)). A rejection under § 102 is proper only when the claimed subject matter is identically described or disclosed in the prior art. See *In re Arkley*, 455 F.2d 586, 587 (CCPA 1972).

In the Advisory Action, the Examiner asserts that “the limitations of claim 14, as broadly interpreted . . . require only that the first optical system and the second optical system form an intermediate image of a surface, which is taught as illumination path 15a and image path 15b in *Davis*,” and further that “[t]he claim 14 limitations do not state that each optical system much form images independently, nor where the images are to be located in the optical paths of these optical systems.” *Advisory Action* at 3.

Applicants respectfully maintain that claim 14, as amended herein, is allowable over *Davis*, because *Davis* does not disclose, among other elements, “**a first optical system that forms an intermediate image** of the primary image surface; and **a second optical system**

having a concave reflector **that forms a secondary image** corresponding to the secondary image surface according to the intermediate image.”

The system of *Davis* teaches the formation of a single intermediate image. As illustrated in FIG. 3 of *Davis*,

Optics engine 15 primarily comprises an illumination path 15a, the SLM 33, and an image path 15b. As explained below, the illumination path 15a provides high angle illumination, and the image path 15b accepts the offset pupil resulting from the high angle illumination and converts the resultant high-angle projection path into an on-axis telecentric path at the image of the SLM.

*Davis* at col. 3, ll. 38-46. Moreover, the *Davis* discloses,

Relay path 34 has a first set of lenses 34a, a mirror 34b, and a second set of lenses 34c. The first set of lenses 34a receives offset light reflected from SLM 33. The light rays pass through lenses 34a offset relative to the center of lenses 34a . . . The second set of lenses 34c in the relay path 34 receives light reflected from mirror 34b. It creates an image of the SLM 33, at an intermediate image plane.

*Id.* at col. 5, ll. 6-20. Accordingly, as acknowledged by the Examiner in the Advisory Action, *Davis* discloses a “first optical system and a second optical system [that] form an intermediate image of a surface.” *Advisory Action* at 3. *Davis*, therefore, discloses that light offset by the first set of lenses 34a (illumination path 15a) is received by lenses 34c (illumination path 15b) to create a single intermediate image, and fails to disclose or suggest, a first optical system that forms an intermediate image and a second optical system that forms a secondary image, as required by amended independent claim 14.

For at least these reasons, independent claim 14, as amended, is allowable over the disclosure of *Davis*. Therefore, Applicants respectfully request reconsideration and withdrawal of the § 102(b) rejection of amended independent claim 14 based on *Davis*.

**Claim Rejection under 35 U.S.C. § 103(a) based on Hiller, Davis, and Cotton**

In the Final Office Action, claims 14 and 16-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Hiller*, in view of *Davis*, and further in view of *Cotton*. *Final Office Action* at 5. Of the claims listed in the rejection, claim 14 is the only independent claim. Applicants respectfully submit that *Hiller*, *Davis*, and *Cotton*, regardless of whether they are viewed individually or as a whole, fail to disclose or render obvious all of the subject matter recited in amended independent claim 14, or claims 16-20, which depend therefrom. Therefore, Applicants respectfully submit that the Final Office Action fails to establish a prima facie case of obviousness with respect to these claims.

The rejection statement acknowledges that *Hiller* “fails to teach a projection optical system [including] . . . a first optical system that forms an intermediate image of the primary image surface; and a second optical system having a concave reflector that forms the secondary image surface according to the intermediate image.” *Final Office Action* at 6. In an effort to remedy this acknowledged deficiency of *Hiller*, the rejection statement asserts that *Davis* discloses “(a) A first optical system that includes the optical elements on illumination path 15a and Relay path 34, [and] (b) A second optical system that includes optical elements on Image path 15b and Projection optics 37.” *Id.* at 7.

For reasons at least similar to those outlined above, Applicants respectfully maintain that claim 14, as amended herein, is allowable over *Davis*, because *Davis* does not disclose, among other elements, “a first optical system that forms an intermediate image of the primary image surface; and a second optical system . . . that forms a secondary image corresponding to the secondary image surface according to the intermediate image.”

*Cotton*, which was cited for the alleged disclosure of “the use of substantially rotationally symmetric lens groups in a projection display apparatus” (*Final Office Action* at 9), is devoid of any teaching relating to a projection-type image display apparatus including a first optical

element that forms an intermediate image and a second optical element that forms a secondary image according to the intermediate image as claimed. Accordingly, *Cotton* also fails to remedy any of the above-noted deficiencies of *Davis*.

For at least these reasons, the *Hiller*, *Davis*, and *Cotton*, regardless of whether they are viewed individually or together, fail to disclose or render the first optical element and the second optical element, as recited in amended independent claim 14, *prima facie* obvious. Applicants respectfully submit that amended independent claim 14 is allowable over the Examiner's hypothetical combination of *Hiller*, *Davis*, and *Cotton*. Dependent claims 16-20 each depend from allowable independent claim 14, and are therefore allowable for at least the same reasons.

### **Conclusion**

For at least the reasons set forth above, independent claim 14 should be allowable. Dependent claims 15-20 each depend from allowable independent claim 14. Therefore, each of those dependent claims should be allowable for at least the same reasons as the corresponding independent claims, as well as by virtue of their additional recitations of novel and non-obvious subject matter.

In view of the foregoing remarks, Applicants submit that the claims are neither anticipated nor rendered obvious in view of the references cited against the claims. Applicants, therefore, respectfully request reconsideration of this application, reconsideration and withdrawal of the claim rejections, and allowance of pending claims 14-20. If the Examiner believes that a telephone conversation might advance prosecution of this application, the Examiner is cordially invited to call Applicants' undersigned attorney.

Applicants respectfully submit that the Final Office Action contains a number of assertions concerning the related art and the claims. Regardless of whether those assertions are addressed specifically herein, Applicants respectfully decline to automatically subscribe to them. The preceding remarks are based only on the arguments in the Final Office Action and

Advisory Action, and therefore do not address patentable aspects of the invention that were not addressed by the Examiner in either the Final Office Action or Advisory Action.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account 06-0916.

Respectfully submitted,

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